



2.7 Greece

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2.7.1 *Summary*

This document reports the results of a study on the involvement of end-users in Research and Development (R&D) activities in Greece. The study was conducted by the Institute of Computer Science (ICS), Foundation for Research & Technology - Hellas (FORTH) in the context of the FORTUNE Project (Forum for user-ORganisations Training for Usage and Networking in Europe), which is a horizontal support action project under the Telematics Applications Programme, DE Sector. The main objective of the project is to facilitate the participation of disabled and elderly users in R&D activities at a European level, and improve the exchange of experiences through user information networking.

The study was conducted during January and February 1998, through a structured questionnaire, see APPENDIX A (not included in this report) that was sent to 30 organisations in Greece including R&D institutes, rehabilitation centres, educational and academic institutes, assistive technology manufacturers, user associations and IT companies, see APPENDIX B (not included in this report).

In the “Methods and Experiences” section, the methods, strategies and approaches for user participation in the different stages of R&D activities in Greece are reported, and indicative data concerning user involvement in Standardisation work and Comparative testing is also provided.

In the “Overview of End-user Training” section, the type and content of training provided to the end-users in order to qualify them for participation in R&D activities are reported. The organisation of training as well as procedures and methods for evaluating the training process are presented.

Indicative data concerning the organisational and economical frameworks for user participation and training in Greece is presented in section “Overview of Organisational and Economical Frameworks for end-user participation in R&D”.



The main conclusions of this study can be summarised as follows:

1. There was a 40% response to the questionnaires sent out (12/30 questionnaires were answered).
2. From the obtained responses, user participation in R&D appears to be “extensive”.
3. Usually, users undergo training, so that their participation in R&D work is more effective.
4. With few notable exceptions, user participation in standardisation work and comparative testing is not systematically adopted in Greek organisations.
5. With few notable exceptions, there are no clear, predefined organisational or economical frameworks in Greece concerning user participation in R&D.

2.7.2 *Methods in carrying out the Inventory*

The data was collected through a structured questionnaire, which is attached in Appendix A (not included in this report), produced by ICS-FORTH and sent to 30 organisations in Greece representing R&D centres, rehabilitation centres, educational and academic institutes, assistive technology manufacturers, user associations and IT companies. The experience of ICS-FORTH as the National Co-ordination Centre in the context of the HELIOS-HANDYNET project, and its close links with rehabilitation institutes, user organisations and assistive technology manufacturers in Greece, facilitated the collection and analysis of data. Furthermore, the study was based on previous experience in a number of European support measures, studies and projects, such as, for example, the TIDE-HEART and the TIDE-CORE projects.

The questionnaire is structured according to the following sections:

- A. Organisation Details
(name and type of organisation, description, contact person)
- B. End-user Participation in R&D
(ways of approaching end-users, end-user participation in different stages of R&D)



- C. End-user Training
(type, content and organisation of training, evaluation of the training process)
- D. End-user Participation in Standardisation Work
(user selection and involvement methods)
- E. Organisational and Economical Frameworks for End-user Participation in R&D
(*organisational and economical frameworks*)

2.7.3 *Institutions, Organisations, Actors*

This report reflects the views of the organisations, which participated in the survey conducted by ICS-FORTH, regarding end-user participation in R&D activities in Greece. The respondents to the questionnaire were directors, social workers, psychologists, professors, research and technical staff, chairmen of associations, etc.

In particular, the questionnaire was sent to various organisations with different activities, which included:

- R&D centres
- rehabilitation centres
- educational and academic institutes
- AT manufacturers
- user associations
- IT hardware manufacturers
- IT software houses
- other

From the above categories, the IT hardware manufacturers and AT manufacturers did not provide any input to the survey. Figure 1 illustrates the number and type of organisations that responded to the questionnaire.

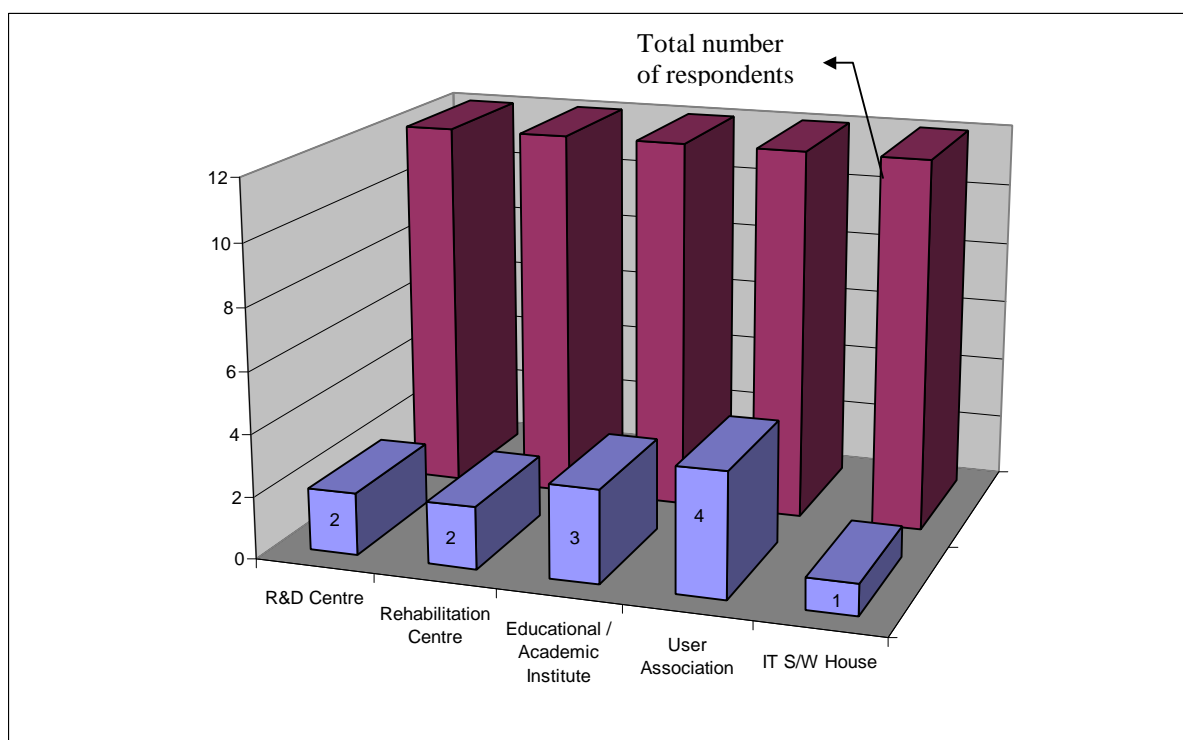


Figure 1 - Organisations that responded to the questionnaire

The main activities of the R&D centres include applied research, development of applications and products, and service provision, according to the short- and long-term needs of the Informatics sector in Greece, and current trends in research and technology.

Among the main activities of User Associations is the protection of social and legal rights of disabled people in Greece such as education, independent living, training in the field of Information Technology, and organisation of social events. A User Association may also act as an information point for disabled people, providing users with information relevant to their needs. Finally, such organisations participate in pilot programmes at a national and European level.

Work carried out by Rehabilitation Centres includes training in the context of primary and secondary education, vocational training, co-ordination of out-doors activities, functional rehabilitation of motor-impaired people (medical services, laboratories, physiotherapy, occupational therapy, training in everyday living activities, production and service of orthoses and prostheses), social and psychological support, camping, etc.



Education and Academic Institutes include Universities and Special Education Schools for visually and hearing impaired people. Work carried out by these institutes includes, apart from teaching, R&D activities as well. These activities concern the socio-economic integration of disabled people with special emphasis on the development of Training Software through the use of multimedia.

Apart from the development of general-purpose software, some IT Software Houses specialise in the development of multimedia educational software.

2.7.4 *Methods and experiences*

2.7.4.1 **User Participation in R&D and Related Issues**

R&D projects carried out

Organisations in Greece carry out European Collaborative R&D projects and National R&D projects. However, some organisations undertake projects which are financed using their own resources (Figure 2).

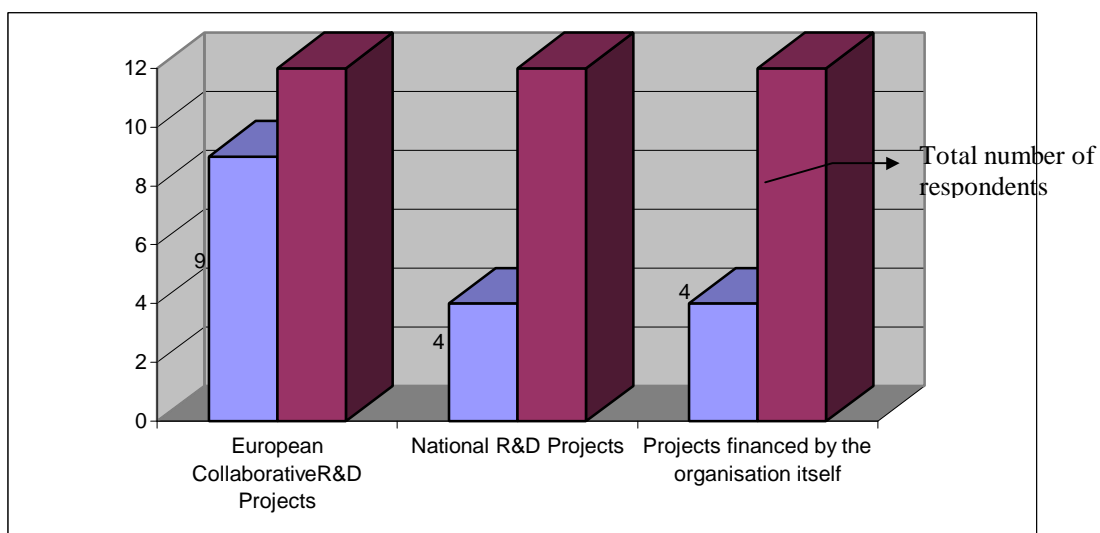


Figure 2 - Type of R&D Projects

Availability of end-users

The availability of end-users is mainly achieved through the collaboration of the organisations conducting the R&D with Rehabilitation Centres. There are occasions

where direct communication takes place between the product developer or the service provider and representatives of the end-user of the particular product or service on a part-time basis (Figure 3).

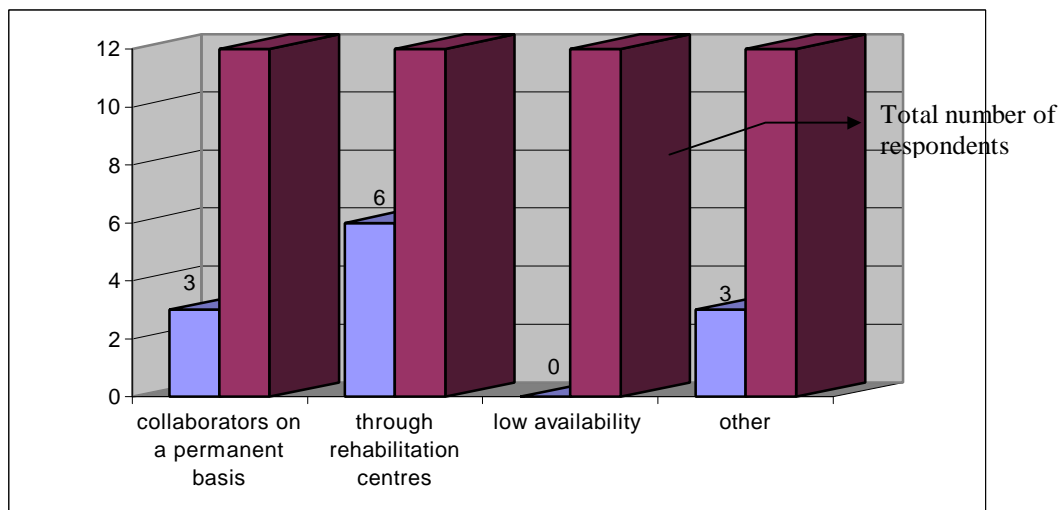


Figure 3 - End-users Availability

2.7.4.2 Methods for approaching end-users

End-users are mainly approached through the co-operation with User Associations and through direct observations (user trials and ability tests) so that special cases and individualities of end-users are identified. User Associations include Rehabilitation Centres for children with mental disabilities, deaf associations, special schools for the blind, etc. Alternative methods for approaching end-users include interviews to end-users and to their relatives, creativity processes such as brainstorming sessions, group discussions, and user panels, market surveys, and use of Mass Media. Combinations of the above methods are also applicable (Figure 4).

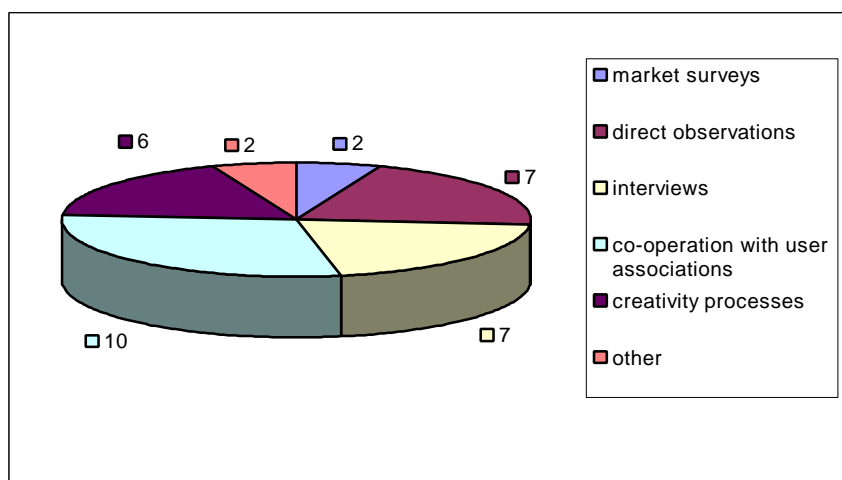


Figure 4 - Methods for Approaching End-users

User participation in the different phases of R&D

There are several sources of information that can be used to conduct R&D, with end-users being usually the first and most important information source investigated by the conductors of R&D. The involvement of users can be achieved in different ways. A user can either be a member of a working group, a user panel, or a member of a user group. However, the involvement of the trainer, who is going to train the user on how to use a new product or service, is also essential.

While trying to develop a new product or to establish a new service, R&D must be carried out as a problem-solving process. A sequence of consecutive phases must be provided and followed.

User participation is regarded as being essential and must be provided throughout the whole process. According to the study conducted, user participation is quite extensive in the R&D phases considered (*Table 1*), and can be summarised as follows:



Table 1: End-user participation in the different stages of R&D
 (total of 12 organisations)

definition of project goal	4
definition of project boundaries	4
definition of applying restrictions	5
gathering of user requirements	7
identification of expected costs & benefits	1
model of product functionality	3
proposal for equipment configuration	4
documentation of end-user procedures	1
development of working product	3
full documentation of procedures	1
training of end-users	5
testing of product functionality	5
testing of product usage	6
testing of product safety	3
product evaluation	5
product maintenance	1

Problem definition. During this first phase, end-users participate in the definition of the project goals and boundaries, and the identification of applying restrictions.

Feasibility study. Users participation is limited to the gathering of user requirements, but they do not participate in the identification of expected costs and benefits of the product.

Product analysis. User requirements, which were gathered in the previous phase, are used to develop a detailed model describing the functionality of the proposed product.

Product design. End-users are invited to make proposals for the configuration of the equipment, but do not participate in the documentation of end-user procedures.



Product development. Users are invited to provide valuable input during the development of the working product. Users are trained in the new product's operation to become familiar with it and be able to provide input to the next phase of the product development lifecycle.

Testing. End-users are involved in testing the new product as far as its functionality, usage and safety are concerned.

Post-implementation review. A product evaluation by the users takes place to determine whether the product satisfies the goals set for it. However, users are not involved in the stage of product maintenance.

Participation of end-users in some particular stages of the product development lifecycle is regarded as being most effective. These stages are the definition of the goal and the boundaries of the project, the identification of any applying restrictions, the gathering of user requirements, the testing of product functionality and usage, as well as the product evaluation. Through these stages, better adaptation to user needs and higher efficiency and effectiveness of the product are achieved. Although respondents agree that user participation is vital in all stages of the product lifecycle, this is difficult to achieve because of the lack of special knowledge in fields such as the documentation of end-user procedures.

2.7.4.2 Strategies, methods, and examples of end-user involvement in the product development lifecycle stages

a) user selection strategies

Interviewing is one of the main methods used to gather information about user objectives and requirements. Another method, in the case where disabled people are invited to participate in R&D, is the creation of a scientific committee, which selects end-users according to certain criteria. Such criteria, according to the survey, are the user's age, the type and the extent of his/her disability, his/her perception and concentration ability, the user's family status, the willingness of the user, and any previous experience of the user.



However, some organisations conducting R&D do not follow particular procedures while selecting end-users. When direct involvement of end-users does not occur, trainers are involved and their involvement depends on their experience and expertise, as well as on the type of the product being developed.

b) methods for user involvement

Methods of user involvement in R&D vary according to the organisation (Figure 5). Some organisations come into direct communication with end-users taking into account their experience, whereas others involve only the trainers of end-users.

End-users are invited to the premises of the laboratory where they actively participate in evaluation meetings either as members of working groups or individually. Users may also be invited to participate as members of a co-ordinating committee or as members of the group that develops the product. Those users, who actively take part in R&D, act as a link between the Research group and all end-users.

Remote participation of end-users is also possible. The product is sent to the user's premises where the testing and the evaluation takes place with the guidance of the trainers.

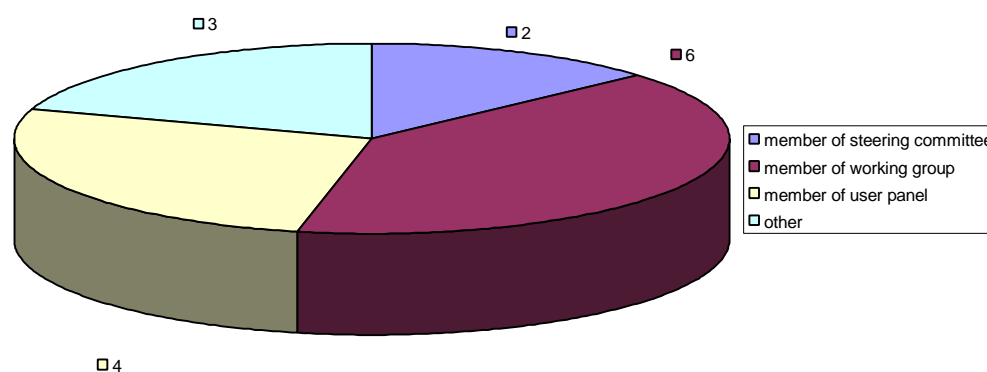


Figure 5 - Methods for Involvement of Users



c) examples of good practice

Examples of good practice include the development of software for special education on subjects such as Algebra, Greek Geography, Language, and Physics, as well as the support of blind students in mainstream schools.

User feedback is another example of good practice. Users are invited to evaluate a product, identify its problems and make suggestions as to its improvement, which are then processed accordingly by the product developer.

2.7.4.3 User Participation in Standardisation Work, and in Comparative Testing by

Testing Agencies

As reported in the questionnaires, end-users are not formally represented in standardisation bodies and do not directly participate in standardisation activities. However, their particular requirements and recommendations for further standardisation work in specific areas are captured through their involvement in the different stages of the product lifecycle.

ICS-FORTH is one of the organisations, which is being actively involved in standardisation activities at a European and International level, regarding user centred design and user interface accessibility. More specifically, ICS-FORTH has recently submitted a recommendation under the ISO TC 159 / SC4 / WG 6 committee, concerning the standardisation of a procedure and a format for the collection and analysis of user requirements within a user-centred design process. The rationale for this recommendation is grounded on the fact that not all user groups are captured with respect to their needs and requirements, as well as the need for a specific format for specifying requirements for different user groups to facilitate this process.



2.7.5 *Overview of End-user Training*

When end-users are involved in R&D, in most cases training takes place to empower individuals for participation. In the cases where no training takes place, developers always make a presentation of the product and its philosophy to the users.

2.7.5.1 **Type of Training**

Tutorials and seminars are organised and take place before the evaluation of a product. These sessions are in the form of experimental and pilot work.

2.7.5.2 **Content of Training**

Training can take place in a number of different forms. End-users can be trained either as members of a group or at private sessions. During this training, end-users are first invited to make themselves familiar with the basic principles and methodologies of Information Technology (e.g. the use of personal computers, office automation, etc), and then to receive a demonstration of the product, as well as to practice themselves with its functionality and use. On several occasions the functionality and the usage of a product are first demonstrated to the trainers of the users, who are also asked to practice with the product before proceeding to the training phase.

Training may also be achieved through several social and cultural activities to which end-users are invited.

2.7.5.3 **Organisation of Training**

Training, irrespective of whether it takes place within a user group, an individual session, or as curriculum-based training, is always organised after taking into serious account the individual needs of the participating end-users. Any previous experience and special skills of end-users are also identified through discussions and tests.

2.7.5.4 Evaluation of the Training Process

There are reported occasions where the training process is evaluated. Methods of evaluation include the informal collection of users' opinion at the end of the training session, questionnaires anonymously answered by third parties, such as close relatives or friends of the end-users, the informal collection of trainers' opinion at the end of the training session, or the collection of evaluation sheets completed by the trainers (Figure 6).

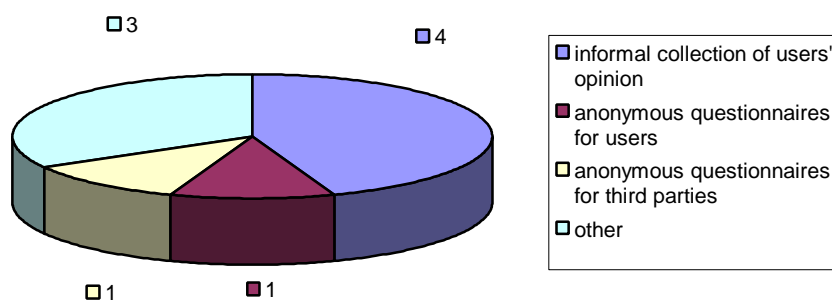


Figure 6 - Methods for Evaluation of Training Process

2.7.6 Overview of Organisational and Economical Frameworks for End-user

2.7.6.1 Participation in R&D

The end-user participation in R&D in Greece depends on the specific needs of the R&D project or activity. Their participation is achieved either through active involvement in a research group that undertakes the development of the particular project, or through involvement in a working group which is occasionally set-up to provide support in specific stages of the project lifecycle. Depending on the type of involvement of end-users in R&D activities, a different economical procedure is followed. These procedures may concern permanent contracts between end-users and the specific organisation, partnership in the context of a particular project, or contracting end-users on part-time or hourly-basis.



It has become obvious from the study results that user involvement in R&D has been considerably enhanced / empowered through their active involvement as partners in European R&D projects, their representation in European and/or National User Fora ,as well as their participation in study groups that are formed to facilitate the evolution and development of new technology at European level. There is also a trend at National level to work out and define a systematic organisational framework for the participation of end-users in the different stages of R&D.

An example of this trend is the development of a National Network, set-up in the context of the HELIOS-HANDYNET project and co-ordinated by ICS-FORTH, comprising User Organisations, Rehabilitation Centres, and Public Authorities which were also actively involved in the development of the HANDYNET Information System in Greece.

2.7.7 *Summary of Findings*

In the context of the FORTUNE project a study was conducted in Greece by the Institute of Computer Science, Foundation for Research & Technology - Hellas (ICS-FORTH), to assess methods and experiences of end-user participation in R&D activities in Greece. This study was conducted during January and February 1998, through a structured questionnaire that was circulated to various organisations to reflect the situation in Greece.

The actors addressed in the study were carefully selected to maintain a balance across different sectors. The data collected concerns 12 organisations in Greece (out of 30 addressed), and the response rate could be characterised as satisfactory considering the time constraints applied.

The amount of data collected in a short period of time is not extensive. However, it is believed that it can adequately serve the purpose of providing a clear indication of the situation in Greece.

It appears that end-user participation in R&D is rather “extensive” in Greece, a finding characterised by the authors of this report as somewhat surprising, as there are no specific organisational and economical frameworks followed. It also appears



that there is a high level of availability of users, although this availability does not emerge on a permanent basis.

2.7.7.1 User Participation in R&D

According to the study conducted, user participation is active in the following stages of the product development lifecycle: definition of project goal and boundaries, identification of applying restrictions, gathering of user requirements, product analysis, product design, development of working product, training of end-users, testing of the functionality, usage and safety of the product, and finally product evaluation.

User participation is considered more effective in early stages of the lifecycle, namely the project definition stage and the feasibility study phase, as well as during the testing phase at the end of the lifecycle, because this is when better adaptation to user needs and higher efficiency and effectiveness of the product are achieved. End-user participation is rather limited in the identification of expected costs and benefits of the product, documentation of end-user procedures, and product maintenance.

In the cases where direct end-user participation in R&D cannot be achieved, the involvement of trainers becomes of great importance. Trainers are asked to act as an intermediate between the organisation conducting the R&D and the end-user.

According to the results of the study, end-users are not formally represented in standardisation bodies and are not directly participating in standardisation work. However, their requirements and recommendations for further standardisation work in specific areas are captured through their involvement in the different stages of the product's lifecycle.

2.7.7.2 User Training

Users usually undergo training, targeted in making them more effective in their participation in R&D work. In the cases where no training takes place, developers always make a presentation of the product and its philosophy to the users. On several occasions the functionality and the usage of a product are only demonstrated to the



trainers of the users. In the cases where the training process is evaluated, both end-users and trainers provide input.

As a final remark, the study clearly points out that an effort is being made to follow a systematic process for user participation in R&D in Greece. User involvement in such activities is definitely promoted by the R&D project work funded by the European Commission, as well as by the current trends towards the adoption of User Centred approaches to product development.

2.7.8 *Organisations that have filled in the questionnaires*

Foundation for Research and Technology - Hellas (FORTH)

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Contact person: Prof. Constantine Stephanidis
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Spastics Society of Northern Greece

112 Theagenous Charisi Street

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Contact person: Ms Ioli Markettou
Director

Association of Disabled People of Kozani Prefecture

5 Trapezountos Street

Ptolemaida

GR-50200, GREECE

Contact person: Mr Anastasios Veranis
Chairman



National Institute for the Deaf and Hearing Impaired

Panorama

Thessaloniki

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Contact person: Ms Eleni Iakovidou

Social Worker

Vocational Training Centre for the Blind

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Contact person: Mr Gabriil Sarantidis

Member of Staff

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Contact person Ms Maria Karavelaki

Managing Director



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Contact person Ms Anthi Chatzipetrou

European projects sector